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Healthcare Facilities Settings: An overview of Environmentally-induced Stress on Health

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Abstract

The role of FM practitioners is to create an environment that sustains the primary objectives of the organisation. In managing healthcare facilities, the aim is to serve the healthcare users with efficient and quality medical environments in order to enhance the healing process. However, dysfunction that exists in environmental design is one of the issues often faced by the healthcare FM practitioners these days. Psychological stress is viewed as a consequence of design-behaviour dysfunction when the existing environmental design can no longer fit the need of users. With the possibility of certain environmental features to act as the sources of stressors, it is vital for FM practitioners to discover those features from the surrounding environment that appear to be harmful to the healthcare users. This paper provides an overview of the effect of the surrounding environment on stress. The association between environmentally induced-stress and the impacts of health is further discussed. Lastly, the application of evidence-based practice (EBP) is suggested in order to further the understanding for the association and intervention between environmental stressors and clinical outcomes.

Keywords: Stress; environment; facilities management; healthcare facilities; evidence-based

Abstrak

Pengurus fasiliti berperanan untuk mewujudkan persekitaran fasiliti yang dikehendaki bagi memenuhi objektif utama sesebuah organisasi. Tujuan pengurusan fasiliti bagi kemudahan kesihatan sewajarnya bertumpu pada penyediaan persekitaran yang cekap dan berkualiti bagi mempercepatkan proses pemulihan pengguna. Namun, isu ketidakfungsian yang timbul dari segi rekaan persekitaran kini merupakan isu yang sering dihadapi oleh pengurus fasiliti. Tekanan dari segi psikologi dilihat sebagai kesan daripada isu berkenaan apabila persekitaran fasiliti yang sedia ada tidak lagi bersesuaian dengan keperluan pengguna. Oleh itu, adalah penting bagi pengurus fasiliti untuk mengenalpasti ciri-ciri dari persekitaran fasiliti yang mungkin bertindak sebagai sumber tekanan. Kajian ini memberikan gambaran keseluruhan pada kesan persekitaran fasiliti terhadap tekanan dari segi psikologi. Hubungan antara tekanan berkenaan dengan impak kesihatan turut dibincangkan. Pengaplikasian amalan *evidence-based* (EBP) dicadangkan supaya pemahaman terhadap hubungan antara tekanan psikologi dari persekitaran dan kesan klinikal boleh dilanjutkan.

Kata kunci: Tekanan; persekitaran; pengurusan fasiliti; kemudahan kesihatan; *evidence-based*

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1.0 INTRODUCTION

The field of facilities management (FM) has evolved rapidly following the global demand for the efficiency of continuing operation and service delivery. The task is becoming even more challenging for the FM practitioners due to the complexity of facilities and buildings in the built environment, especially when it involves a diverse nature of function and operation, such as the healthcare centre or other types of professional workspaces. Fundamentally, the continuous improvement on the competency of FM practitioners is needed to ensure the FM service is being delivered effectively. In clarifying the role of FM practitioners, the definitions from Barrett (1995) and the British Institute of Facilities Management (2003) are widely highlighted, in which the scopes of FM can be clearly summarised as the integration of multi-disciplinary tasks within the built environment of an organisation and the management of its impact upon users and built settings, in order to create an environment that sustains the primary objectives of the organisation (Shohet and Lavy, 2004; Alexander *et al.*, 2004).

Following the demand from different organisations, FM practitioners are often required to acknowledge the importance of multiple disciplines including architecture, planning, engineering, management, operation, environmental psychology and other related disciplines within the nature of their assigned tasks. Acquirement of advance knowledge on these disciplines is relatively importance for the FM practitioners to integrate these interdisciplinary fields in their practice of facilities planning and management. In particular, this skill is progressively demanded especially for the planning and management of buildings and facilities in healthcare settings.

The awareness towards the quality of healthcare is ever-increasing due to the booming of the concept of wellness. Although the healthcare facilities have been expanded rigorously, the capability of current available healthcare facilities to serve the users with efficient and quality medical environment is still being questioned. Poorly managed healthcare environment is linked to the negative consequences on the patients, such as frustration, slowness of recovery and increased intake of drug (Devlin & Arneill, 2003). Significant surveys by researchers as reported by the Center for Health Design have proved that the healthcare environment directly affects the wellness of users, either patients or staffs (Ulrich *et al.,* 2004). This irrefutable reality has urged FM practitioners to be alert to the possible immediate needs of the users towards healthcare facilities and the surrounding environment.

The dysfunction that occurs in preceding environmental design is one of the issues often faced by the healthcare FM practitioners these days. Subsequently, stress is viewed as a consequence of design-behaviour dysfunction when the existing environmental design can no longer fit the need of users (Evans, 1982). The effects of environmental stress on human health and behaviour has been studied and confirmed to exist by Evans and Cohen (1987). The conventional ways of planning and managing healthcare centres are proven to contribute to stress that is unnecessary. It is undeniable that physical environments provided in a healthcare centre are relatively important to the users from the psychological aspects whereas disregard for this issue might lead to problems such as stress to go worse. Therefore, it is vital for FM practitioners to discover those environmental features that appear to be harmful and dysfunctional to the healthcare users.

Awareness on the burdens of mental health has been realised for over a decade, yet the healthcare facilities are typically less focused on caring for mental conditions of their users (Thomas *et al.,* 2011). The exposure of this vulnerable environment is unsuitable, especially for hospitalised patients. Certain environmental features in the healthcare building indeed lead to the stress responses among the users. However, the decision-makers for the management of healthcare are often uninformed about how a hospital's feature can distress patients and staffs (Robert Wood Johnson Foundation, 2009). In order to ensure a better quality of healing environment is being delivered to its users, healthcare FM practitioners are expected to intervene or eliminate the occurrence of stressful environmental features that exist in the healthcare centre during their professional conduct. However, the decision made shall not be based on gut feeling. As conventional way for decision-making is no longer suitable, it is crucial for the healthcare FM practitioners to base their decision on the best research evidence whereas the best decision is being made to achieve an optimum result satisfied by all the involved parties.

In the attempt to adopt solid approaches for controlling such occurrence of stress, it is essential for the healthcare FM practitioners to first understand the mechanism of stress and how the environmentally-induced stress is associated with the individual health and well being. The following literature will give an overview on the impact of the surrounding environment on psychological stress. The discussion will focus on the environmentally induced-stress and how it impacts the health of individuals via stress mechanism. In the end of this article, the idea of evidence-based practice (EBP) is proposed in order to assist the FM practitioners in advancing their perceptive on environmental interventions towards better clinical outcomes.

■2.0 ENVIRONMENTALLY-INDUCED STRESS

2.1 Mechanism of Stress

Stress is an inevitable force we faced from our sense and surrounding. The concept of stress has been derived from the clinical practice since the last few decades. This concept has been initiated by the works of Hans Selye and Walter Cannon in the early of 1930s. However, it was not given much attention until its negative impacts are known to public through the mounting of research evidences. Ever since, it has been given focus gradually in health sciences.

The definitions for the term may vary by distinct interpretation in various fields of studies. Selye (1974) defined stress as physiological response towards threatening surroundings, such as cold, heat, etc. On the other hand, Lazarus (1993) stated that stress is the outcome from the individual's perception on harmful and challenging surroundings. Literally, stress is caused by a multitude of stressors when the surrounding environment demands more than we can handle. Levi (2005) described the circumstance as an imbalance between what we need and capable of, and what our surrounding offers and what it demands of us. This interpretation has served as a broad framework for linking the understanding between stress and our surrounding environment.

Cannon (1935) was among the first to propose about bodily responses in terms of physiological functions affected by various emotional states and stress levels, such as atypical responses of blood flow and body muscle, elevated heart rate and blood pressure. On the other hand, Selye (1956) discovered the physiological changes when the body exposed to environmental stimuli, which was then referred as stressors. These changes such as gastrointestinal ulcers, adrenal enlargement, involution of the thymus and lymph nodes had been verified when bodies were tested through the exposure to stimuli such as pain, noise, heat and cold.

Conversely, studies on psychology aspects of stress have recognised the cognitive appraisal of environmental surrounding from the perspective of different individuals. This was revealed by Lazarus (1966) via his discovery on the differences of interpretation among individuals towards the level of threatening about particular environment, event or situation. Thus, individual's cognitive appraisal of particular circumstance as stressful is a key part to the stress mechanism. The particular event, experience or environmental stimulus that caused stress is also referred as stressor. Commonly, the contexts in which stressors occur have been significantly influenced by our cognitive interpretations of the surrounding. It is more than often to occur that individuals are concerned not by the stressor itself, but by their perception of the stressor.

In general, we can conclude that stress is a kind of internal state or reaction of an individual towards the environment, whereas an individual tends to experience stress if he/she perceives negatively towards the surrounding environment (Makhbul and Idrus, 2009). It is vital to understand individual's perception in order to eliminate or avoid harmful stressors, as not all stimuli are considered harmful by individuals. An insight on

how individuals appraise the surrounding and relate it to stress could guide the practitioners in understanding the stress responses yielded.

Appraisal of stress and the way it transacted between people and environment were developed and explained by Lazarus and Folkman (1984) via Transactional Model of Stress. This was further discussed by Bechtel (1999) in the form of Psychological Model of Stress. Bell and colleagues (1996) illustrated the Stress Model from the perspective of Environmental Stress Theory. For a brief understanding on the formation of environmentally-induced stress, the process is simplified and demonstrated as in Figure 1.

Stimulation in the forms of situation, event or environment will be interpreted through individual's cognitive appraisal. It is followed by the assessment of threat and this process is usually named as Primary Appraisal. After appraising the stimulus, the individual can choose to cope through direct action or to avoid it by getaway from the circumstances. In order to determine the ability of individual to cope, Secondary Appraisal will take place, which included the assessment of coping strategies. Direct coping involved the manipulation on the physical presence of the stressor. However, palliative coping is carried out as the action of self-altering when direct coping is not possible. Perceived threat, which is incapable to cope by individuals, will be regarded as negative stress (also known as *distress*). On the other hand, positive stress, which is known as *eustress*, will motivate the individual's ability to cope with stressors effectively. However, it is often complicated to differentiate both for certain stressors up until the response is observed and recorded on the individuals. Thus, it is relatively important to understand the mechanism of stress due to the different possibilities of responses stimulated by stressors.

Unlike personal circumstances or experiences which are unique on each individual, effort to control over environmental stimuli can be an alternative approach to yield beneficial health outcome for the individuals. Stress can be beneficial or harmful depends on the way it acts upon the stressors. Although it may seem complex to have modified the surrounding environment, certain environmental stimuli are capable to interfere with the process of forming distress. This requires a better understanding of the relationship between environmentally-induced stress and the health outcome. The following literature discussion will concentrate on the studies concerning environmental-induced stress as possible risk factors for health outcome.

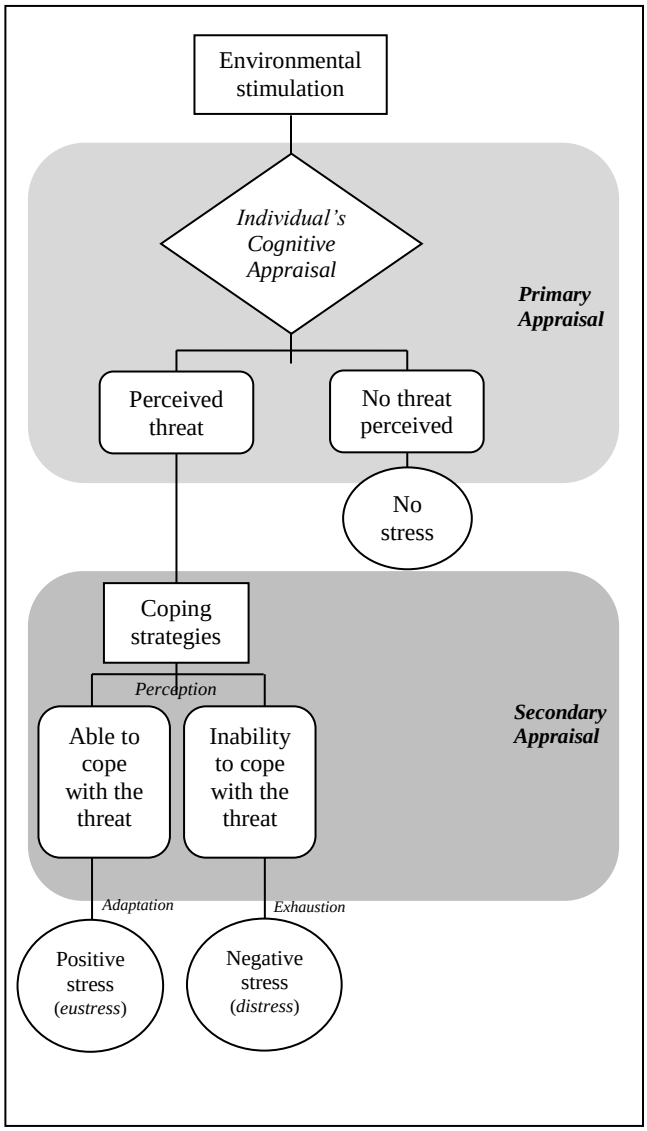

Figure 1 Psychological model of environmentally-induced stress

2.2 Environmental Stressors

Baum *et al.* (1982) concluded that the surrounding environment is the main contributor to a number of stressors, which initiate a variety of physiological and psychological reactions on the person interacted. In many instances, we develop our own stress via the surrounding or background environment. Although level of stress can be affected by changes in environmental quality, the existence of individual differences towards the perception of environment is much related to the objectivity and subjectivity implication of stressors (Evans, 1982).

Selye (1976) emphasized that stress reactions are not automatically bad. Hence, it is essential to differentiate between the unpleasant or harmful source of stress termed distress, as unwanted or unmanageable stressor situations are damaging and could lead to distress (Cooper *et al.,* 2001). It is adopted by most of the researchers that distress could bring negative consequences towards health outcome.

Levi (2005) proposed that environmental stressors can be avoided through the effort to remove, modify, adapt or adjust

particular environmental feature, so that environment-related distress or disease can be prevented. Theoretically, it is applicable as distress such as noise, thermal discomfort, pollution, etc can be avoided by human actions. Due to the complexity of environment especially in the built environment, such action is practically complicated to be conducted. This is largely due to the involvedness of various environmental stimuli. Hence, the complexity of environmental stimuli needs to be studied thoroughly, from the nature of stressors to its implication towards health.

Early study by Zimring (1982) has included the consideration of space, comfort and ergonomic fit, aesthetics and symbolism in the built environment as sources of psychological stress. In the mean time, Shumaker and Reizenstein (1982) have focused theoretically on the environmental factors affecting users' stress in health care setting. For instances, the factors included are wayfinding, privacy and personal territory, and physical comfort. Environmental features that can influence physical comfort are such that noise, temperature and humidity, lighting, manipulation of furnishings and equipments, odours, etc. Then, Hancock (1984) further developed environmental stressors into types such as thermal environment, acoustic environment, and sensory environment in the study to carry a deeper finding on its impact separately.

■3.0 PHYSICAL ENVIRONMENTAL STIMULI OF BUILT ENVIRONMENT

In an effort to understand psychologically mediated effects, Dijkstra *et al.* (2006) reviewed on the study of physical environmental stimuli of built environment, which then classified into ambient, architectural and interior design features. In their researches, ambient features include sunlight, sound and odour; architectural features focus on the effects of windows and spatial layout; while interior design features consider on the effects of natural elements, media equipment and seating arrangement. In the study of ambient features as a background environment, ambient stressors have usually appeared and considered in the form of pollution, noise, crowding, and traffic, which are irritated by most of the individuals. Meanwhile, review by Huisman *et al.* (2012) on physical environmental has included the aspects of lighting, indoor quality, privacy arrangement, orientation, thermal comfort, acoustic comfort and visual comfort. In the evaluation of the perceived environment, Hidayetoglu *et al.* (2012) further related the effects of color and light on indoor wayfinding.

The extensive studies on the effects of environmental features towards stress have been conducted by Sir Ulrich and his colleagues, such as the concept of stress recovery via exposure to positive stimuli that includes comparison of natural and urban scenes, nature and abstract art, etc. It was then concluded through the studies, that nature distraction can be served as source of eustress, which is beneficial in fostering the process of stress reduction. The researchers also summarised from the empirical studies that stress reduction among the users of healthcare setting is related to the environmental design and intervention factors such as noise-reducing finishes, nature views, appropriate lighting, access to daylight, single-bed rooms and family support zone (Ulrich *et al.,* 1981, 1991, 2008).

Studies on these environmental features formed an important contribution to the knowledge of environmental background and its impact towards the occurrence of stress among individuals. In fact, certain stimuli can negatively impact individuals' stress without conscious awareness by them, due to its appearance as daily stressors to certain group of people. Sadly, daily stressors as one of the sources for chronic stress can actually yield greater negative impact on health after a certain periods of exposure.

Stress is difficult to be eliminated through individual's internal perception and personal dilemma, as we can't control the occurrence of crises or daily hassles that faced differently by each individual. Most of the solutions that suggested to fight stress are self-help approaches or group supports such as mindfulness-based intervention, psycho-education approach, etc. However, environment and surrounding can act as a useful intervention other than social support or psychology support. A well-managed environment can be planned properly in order to assist the users of healthcare settings in coping with the negative feelings due to the perceived stress.

To combat environmental distress, it is not necessarily to deal with the actual situation or to fix the concrete obstacle that is causing the stress. Effort should be considered to include intervention input in the process of coping mechanism, which allows the individuals to cope better with the stress.

■4.0 THE ASSOCIATION OF STRESS AND HEALTH

Other than physiological and psychological responses as mentioned above, Levi (2005) mentioned that certain behavioral reactions or cognitive responses take place, as either consciously or unconsciously when people confronted stress. Behavioral problems are another form of distress that is manifested in violence, substance abuse, and accidents.

Stress has been implicated in a wide array of health problems in medicine. Diverse studies and statements have proved that stress will affect the mental, physical and emotional state of a person when excessive level of stress starts to accumulate. A large and growing body of literature has investigated on the contributor of stress to disease and illness, such as pathogenic disease (Mawdsley and Rampton, 2005) and immunity dysfunction (Glaser *et al.,* 1987; De Gucht *et al.,* 1999).

Stress is proved to associate empirically with the conditions of health via the individuals' responses. Diseases that can result at least in part from the occurrence of stress include arthritis, asthma, migraine, headaches and ulcers. Also, experimental study conducted by Kiecolt-Glaser *et al.* (1995) found that wound healing took longer time in response to stress stimulation. As clinical evidences are mounting, the effects of stress are frequently related to the medical symptoms appeared especially in the problem of cardiovascular, respiratory, gastrointestinal, etc. In fact, experimental researches on animals have proved that stress is strongly related to health and negative effects on the body (Eliyahu *et al.,* 1991).

I ndividual distress can also be observed in psychological symptoms. Yet, mental health tends to be a low research priority in public health and whose impact on human and community well being is often underestimated. The impacts of psychological symptoms can actually be worsen and threaten if there is no immediate action or effort to its. The association between stress and impacts of health outcome could shift from psychological effects to physiological and behavioral effects. These dimensions of wellness have examined in at least hundreds of researches worldwide and the association is proved to link with the human responses. Other observations of the symptoms are summarised as in Table 1.

Table 1 The association of stress and impacts of health outcome

Psychological	Physiological	Behavioral
Mood disorder	Aches and pains	Eating disorder
Aggressive	Constant fatigue	Lack of appetite
Short temper	Coated tongue	Impaired sleeping
Agitation	Inflamed tonsils	Abusive or violent actions
Overwhelmed	Blurred Vision	Antisocial behaviour
Loneliness	Skin eruptions or rashes	Substance abuse
Isolation	Hypertension	(Caffeine consumption, cigarette smoking,
Anxiety	Frequent colds	excessive alcoholic intake)
Panic attacks	Irregular periods	
Insecurity	Immunity suppression	
Depression	Slower wound healing	
	Increased frequency of urination or sweating	
	Indigestion	
	Irritable bowel syndrome	
	Changes in blood glucose or blood pressure	
	Migraine, nausea, dizziness	
	Irregular heart rate or rapid heartbeat	
	Cramps and muscle spasms or tension	
	Arrhythmias; Myocardial infarction or stroke (after intensive and frequently recurring)	

■5.0 PROPOSAL OF EVIDENCE-BASED APPROACH TO THE CHALLENGES AND NEEDS IN LOCAL CONTEXT

Several studies conducted in Malaysia shown that there is the occurrence of stress among Malaysian. Most of the studies were conducted in the effort to understand occupational stress among the local employees (Makhbul and Idrus, 2009; Al-Naggar and Chen, 2011; Makhbul *et al*., 2011; Yaacob *et al.*, 2009). Limited environmental considerations are included in the studies. However, the study by Makhbul and Idrus (2009) did include environmental features such as humidity, acoustic, lighting, etc.

On the other hand, it is worth to give attention that most of the studies about stress were conducted in the healthcare settings, especially among the healthcare service providers or staffs (Rusli *et al*., 2006; Lua and Imilia, 2011), family members of patients (Nizam, *et al*., 2001; Mohamad *et al*., 2011), and special patients such as children who are fears of hospitals (Salmela *et al*., 2010; Vavili and Kyrkou, 2010).

It might be due to the characteristics of the environment in healthcare settings, which are often perceived to be more stressful, compared to other public facilities. Besides, the issue of job stress is of utmost weight to the public health community and working populations due to the reality that healthcare workers are working in a rapidly change working environment (Rusli *et al.,* 2006).

High levels of psychological stress are proven to occur among doctors, nurses and other healthcare professionals when they worked in healthcare facilities under various situations (O'Connor, 2000). Research by Lua and Imilia (2011) revealed that healthcare staffs in government sector deemed to be on the relatively higher level of stress compared to staff from private sector. It is suggested that privatised healthcare institutions possess stronger resource support such as the available of state-of-the-art facilities and equipment.

In local context, the issues of stress have been given focus gradually by the researchers from various fields. The impacts of stress are studied widely. However, the association of stress and environmental features are loosely included. Vischer (2008) conducted a study towards environmental psychology of workspace and stated that there are environmental influences towards individual, group and organizational productivity. Still, there are several other unmeasured environmental variables that add to stress, which are unfortunately not included in most of the studies in Malaysia.

The studies of human-environment relationship were majorly focused on design and user satisfaction. Most researches on human responses to the built environment have been theoretical focusing on post-occupancy assessments of users' satisfaction. The environmental stressors in clinical aspects are yet to be explored thoroughly. In order to study the sources of distress in the built environment such as health care setting for the purpose of intervention towards environmentally-induced stress, it is important to view the issues from both management and clinical perspectives. Effort to view from both perspectives simultaneously will aid the effectiveness of issues discovery and environmental intervention.

The difficulties faced by decision-makers regarding the development and management of environmental features in healthcare facilities settings are getting complex due to the complicated relationship between human and the surrounding environment. Lack of consistent solution has existed when it came to the task of decision making in the practice. Knowledge gap appeared in this practice towards healthcare environment has led to a renewed interest in the grasp of further information supported by evidence-based reasoning to handle the challenge. To solve clinical issues such as environmentally-induced stress, one of the clinical approaches to be considered by non-medical background profession is evidence-based practice (EBP).

To integrate evidence-based approach towards health care building decision, the Center for Health Design (2009) defined evidence-based approach as the "..deliberate attempt to base building decisions on the best available research evidence with the goal of improving outcomes..". In the effort to incorporate clinical evidences into managerial practice in a more systematic and scientific way, employment of EBP is suggested by numerous researchers (Axelsson, 1998; Walshe & Rundall, 2001; Young, 2002; Fineout-Overholt *et al.,* 2005; Pullen, 2005; Rousseau, 2006). Although this concept is firstly developed to support the activities of clinical decision-making and medical assessment, it is then gradually proven by literatures that EBP is suitable for managerial practice. The concept of evidence-based health care has been introduced as evidence-based medicine since 1970s by Professor Archie Cochrane. It was then started to spread to field outside medical practice via the involvement of clinicians, nurses, psychologists, managers, policymakers and researchers in health services. In order to improve managerial practice, the idea of

evidence-based approach was urged by Axelsson (1998) to be applied in healthcare education and management practice.

Unlike any other facilities and building project, managing facilities in healthcare environment required FM practitioners to foster appropriate practice for clinical setting. The practice applied should ensure the needs such as reliability, applicability, effectiveness and efficiency are being reached. In a healthcare environment dominated by the notion of evidence-based, the practice of evidence-based healthcare management is likewise expected from the managerials (Jaana *et al.,* 2013). Healthcare facilities managers carried crucial roles as to make sure the healthcare environment is functional while facilitate the care process to the patients. The major awareness as to apply evidence-based practice is to create an ultimate environment that fosters safety and recovery of users.

In answering enquiry for this environmental decision, Malone *et al.* (2007) pointed that EBP has emerged as a scientific reply to the questions about how the elements of built environment are links with patient, staff and resource outcomes. On the other hand, Reay *et al.* (2009) summarised that the systematic use of the best available evidence in evidence-based management is to achieve the goal of continuously improvement on management practice. With solid information supported by reliable evidences, the effort to avoid and minimise chances of bias from personal preferences and unsystematic experiences could be accomplished (Rousseau, 2006). Clinically, healthcare services provided by healthcare practitioners should base as closely as possible to the well-conducted research evidences.

The utilisation of evidence in management and policy is aimed to fill the research-practice gap long existed (Lavis *et al.,* 2005). Transfer knowledge simply by research in traditional context is not enough in these days for the management of complex environment. Input of EBP is relevant as to answer the questions frequently asked in research-practice gap. Walshe & Rundall (2001) supported that adoption of ideas associated with EBP will actually provide remarkable alternatives to bridge research-practice gap. Knowledge transfer from research to practice in evidence-based context involved a series of procedure from data gathering and filtering, evidence synthesis and careful reasoning to reach on the practical knowledge of applicable management practice. The relationship as of application of EBP is roughly illustrated as in Figure 2.

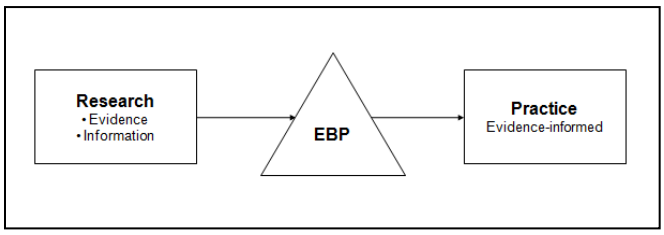

Figure 2 Knowledge transfer in EBP context

Pullen (2005) and Fineout-Overholt *et al.* (2005) urged the critical thinking on transforming of healthcare environment and FM towards the clinical practice through the application of EBP. The practice has been recognised globally on its application in the clinical practice. EBP is useful in assisting the process of decision-making and operational regarding healthcare design and management. However, it did not gain as much attention as it did in the field of architectural and design in local context for the practice of healthcare FM, as much as it did in the field of architectural and design. The design of healthcare architectural has gradually included evidence-based in their practice in order to create an environment that support the needs of users clinically.

6.0 CONCLUSION

Other than providing non-medical services that are suitable for the general comfort of patients, the healthcare FM practitioners are now being expected to focus on the public need via effective planning on the facilities services. This effort is extremely vital for the delivery of healing environment in healthcare settings. Properly planned facilities can act a mediating role of stress intervene resources to stressors in the physical environment.

A growing scientific journalism is confirming that the conventional ways that the healthcare settings are managed is insufficient. The increasing grow of researches conducted on healthcare setting especially from the perspective of EBP have marked as important keys that the needs for better healthcare facilities have grown and become more urgent and important.

The planning for the environment setting in healthcare is vitally important as it could lead to negative impacts towards the users in it. In order to minimise the negative impact such as environmentally-induced stress towards health outcome, the considerations grew complex following the challenge to look at both clinical evidences and users' preferences. Hence, evidence-based reasoning is suggested in showing how to maintain stress prevention environment. The clinical reasoning will eventually improve outcomes for patients and caregivers when designing and managing hospitals (Robert Wood Johnson Foundation, 2009).

Healthcare planned and conducted in evidence-based context leads to better clinical decisions and patient outcomes. This is due to the fact that the EBP permits the clinical decisions to be made based on the best research evidence derived. The major contributors to the EBP are summarised as patient values and preferences, best research practice and clinical expertise. By proposing the EBP to the field of healthcare facilities management, it is in hope that the effectiveness of healthcare delivery services will boost upon the growth of the FM profession in the healthcare organisation.

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